



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47264/2435

Customer: _____	Tested By: <u>Joshua Monley</u>
SO No: _____	Temperature: <u>+25°C -40°C +85°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>8/28/2024</u>
Serial No: <u>PL47264/2435</u>	Drawing No: <u>27620201</u> Rev: <u>A1</u>

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	0.5 GHz – 2.0 GHz	0.5 GHz – 2.0 GHz See Plot	<i>PMI</i> QA3
2	TSS:	-44 dBm Min @ -40°C to +85°	-44.7 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.2 dB See Plot	
4	Input / Output Characteristics: (93 Ω)	Y = 2350 + 50X [X: Input (dBm), Y: Output (mv)]	Pass	
5	Logging Accuracy	±1.5 dB Max (@ +25°C, 1.0 GHz) [-40 dBm ≤ INPUT ≤ 0 dBm] ±2.2 dB Max (Note)	+0.30 / -0.52 dB +0.78 / -1.20 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.23 / -0.28 dB +0.41 / -0.35 dB See Plot	
7	Maximum Input Power (CW):	+23 dBm	Pass	
8	Duty Cycle:	100%	Pass	
9	Rise Time:	30 ns Max (10% to 90%)	26.3 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	159 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+94 mV @ +25°C +108 mV @ -40°C +117 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.24:1 See Plot	
13	Propagation Delay:	60 ns Max	40 ns	

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14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	85 mA 40 mA	PMI QA3
15	Warm Up Time:	2 Minutes Max	2 Minutes	

*Notes: Includes Frequency Flatness. Input Power, Temperature Deviation and Deviation for DC Offset. The test shall be performed using RG-316 (or equivalent), 20cm, 93±0.5 Ohms terminated.

QA/QC Approval: K. Luter

Date: 8-30-24



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47264/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/28/2024
SERIAL NO: PL47264
TEST TEMP: +25C

Graph #1

DC Offset= 0.094 V



PLANAR MONOLITHICS INDUSTRIES
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Frequency		
0.5 GHz	INTERCEPT (mV)	2331
	SLOPE (mV/dB)	49.4

1 GHz	INTERCEPT (mV)	2341
	SLOPE (mV/dB)	49.5

2 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	49.8

Flatness +/- dB	
Max Video Output Volts	
Min Video Output Volts	

	-40	-35	-30	-25	-20	-15	-10	-5	0
0.5 GHz	347	607	850	1088	1351	1601	1824	2082	2332
	-7	6	2	-7	9	11	-13	-2	1
	-0.14	0.12	0.04	-0.15	0.17	0.23	-0.26	-0.04	0.02
	-0.06	0.14	0.00	-0.24	0.02	0.02	-0.52	-0.36	-0.36
1 GHz	355	615	858	1096	1360	1610	1832	2092	2342
	-7	6	2	-8	9	12	-14	-1	1
	-0.14	0.12	0.03	-0.16	0.18	0.23	-0.28	-0.02	0.03
	0.10	0.30	0.16	-0.08	0.20	0.20	-0.36	-0.16	-0.16
2 GHz	345	606	847	1085	1350	1601	1828	2091	2345
	-4	9	1	-10	5	5	-14	0	5
	-0.07	0.17	0.01	-0.21	0.12	0.16	-0.28	0.00	0.11
	-0.10	0.12	0.05	-0.20	0.05	0.02	-0.44	-0.25	-0.19
Flatness +/- dB	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max Video Output Volts	0.36	0.62	0.86	1.10	1.36	1.61	1.83	2.09	2.35
Min Video Output Volts	0.35	0.61	0.85	1.09	1.35	1.60	1.82	2.08	2.33

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.23	-0.26
LOGGING ACCURACY (dB)	0.14	-0.52

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.23	-0.28
LOGGING ACCURACY (dB)	0.30	-0.36

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.17	-0.28
LOGGING ACCURACY (dB)	0.12	-0.44

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.23	-0.28

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.30	-0.52

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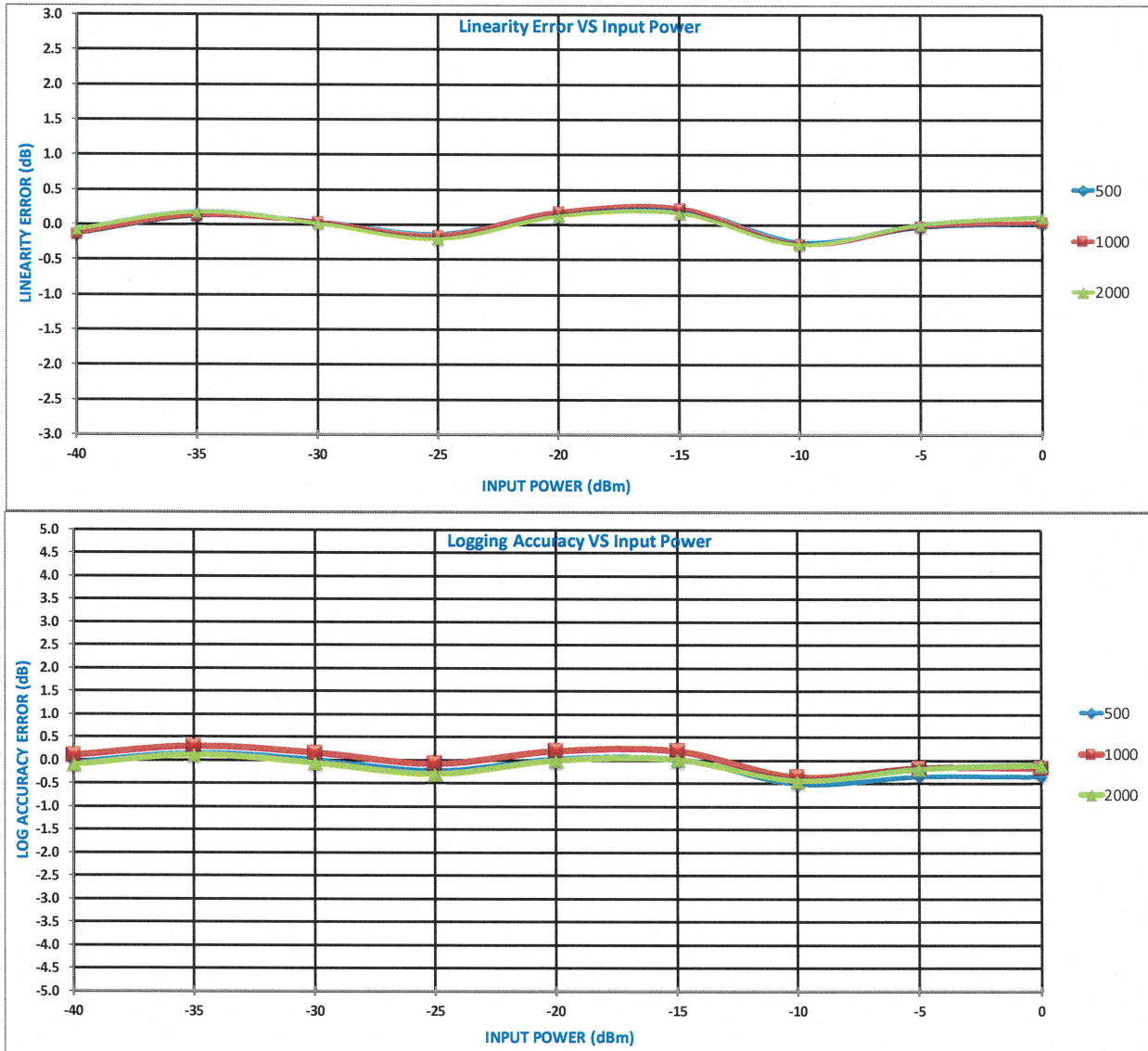


SUMMARY TEST DATA ON HADA-D2001

PL47264/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47264
TEST TEMP: +25C



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SUMMARY TEST DATA ON HADA-D2001

PL47264/2435

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/27/2024
SERIAL NO: PL47264
TEST TEMP: -40C

Graph #2

DC Offset= 0.108 V



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Frequency		
0.5 GHz	INTERCEPT (mV)	2298
	SLOPE (mV/dB)	48.3

1 GHz	INTERCEPT (mV)	2307
	SLOPE (mV/dB)	48.3

2 GHz	INTERCEPT (mV)	2306
	SLOPE (mV/dB)	48.6

Flatness +/- dB	
Max Video Output Volts	
Min Video Output Volts	

	-40	-35	-30	-25	-20	-15	-10	-5	0
	380	596	837	1076	1338	1588	1813	2082	2290
	16	-10	-11	-13	7	15	-2	6	-8
	0.32	-0.21	-0.22	-0.28	0.14	0.31	-0.03	0.12	-0.16
	0.60	-0.08	-0.26	-0.48	-0.24	-0.24	-0.74	-0.76	-1.20
	389	604	846	1086	1348	1598	1823	2071	2297
	15	-11	-11	-13	8	16	-1	6	-10
	0.32	-0.23	-0.23	-0.26	0.16	0.33	-0.01	0.12	-0.20
	0.78	0.08	-0.08	-0.28	-0.04	-0.04	-0.54	-0.58	-1.06
	381	597	837	1075	1339	1590	1819	2070	2300
	15	-9	-11	-15	5	13	1	7	-6
	0.38	-0.18	-0.24	-0.34	0.10	0.27	-0.02	0.15	-0.12
	0.62	-0.68	-0.28	-0.80	-0.22	-0.20	-0.82	-0.60	-1.00
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	0.39	0.60	0.85	1.09	1.35	1.60	1.82	2.07	2.30
	0.38	0.60	0.84	1.08	1.34	1.59	1.81	2.06	2.29

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.32	-0.28
LOGGING ACCURACY (dB)	0.60	-1.20

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.26
LOGGING ACCURACY (dB)	0.78	-1.06

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.38	-0.34
LOGGING ACCURACY (dB)	0.62	-1.00

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.38	-0.34

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.78	-1.20

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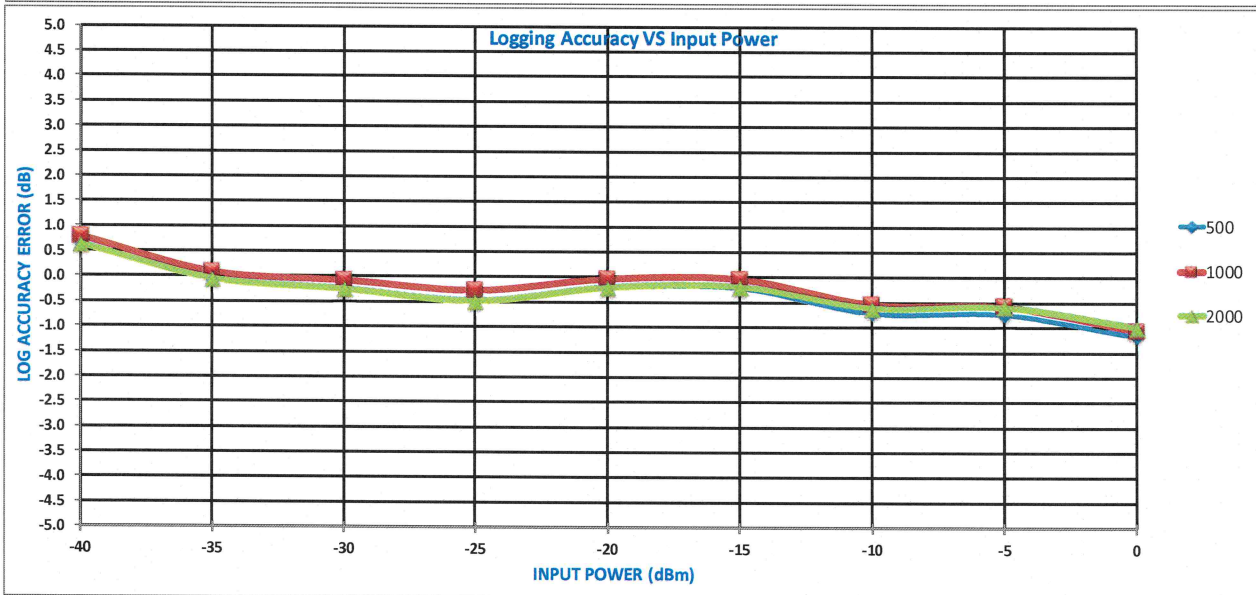
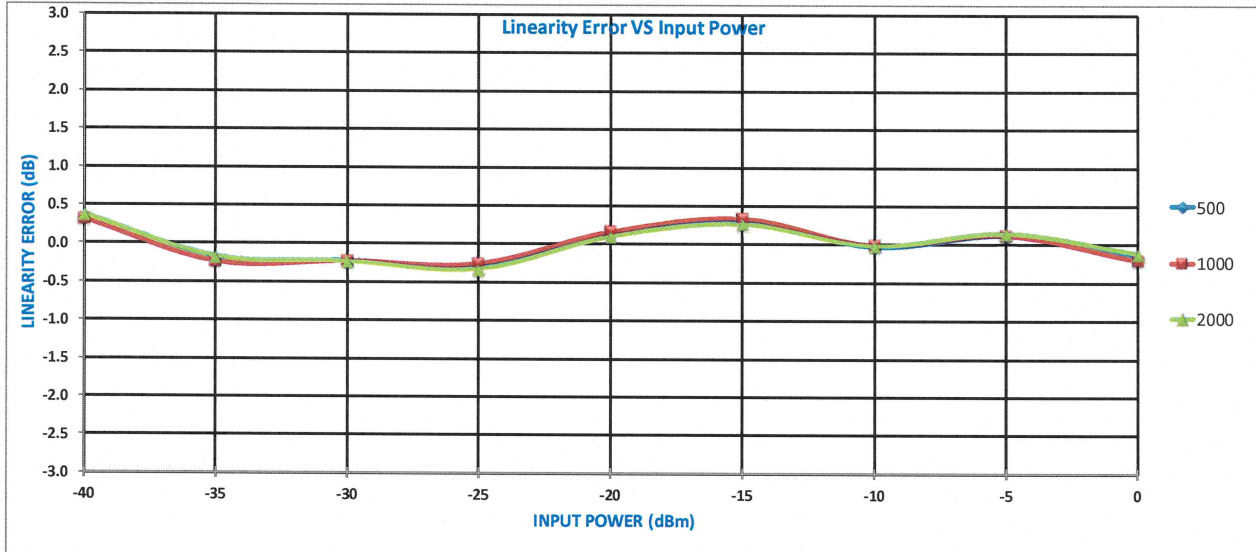


SUMMARY TEST DATA ON HADA-D2001

PL47264/2435

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47264
TEST TEMP: -40C



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**SUMMARY TEST DATA
ON
HADA-D2001**

PL47264/2435

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/27/2024
SERIAL NO: PL47264
TEST TEMP: +85C

Graph #3

DC Offset= 0.117 V



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Frequency		
0.5 GHz	INTERCEPT (mV)	2321
	SLOPE (mV/dB)	49.6

1 GHz	INTERCEPT (mV)	2330
	SLOPE (mV/dB)	49.6

2 GHz	INTERCEPT (mV)	2331
	SLOPE (mV/dB)	50

Flatness +/- dB
Max Video Output Volts
Min Video Output Volts

	-40	-35	-30	-25	-20	-15	-10	-5	0
	335	596	833	1071	1332	1581	1809	2066	2336
	-2	11	0	-10	3	4	-16	-7	15
	-0.04	0.22	0.00	-0.20	0.06	0.09	-0.32	-0.13	0.31
	-0.30	-0.08	-0.34	-0.58	-0.36	-0.38	-0.82	-0.68	-0.28
	343	604	841	1078	1341	1589	1816	2076	2346
	-2	11	0	-11	4	4	-17	-6	16
	-0.03	0.23	0.00	-0.22	0.08	0.08	-0.35	-0.11	0.33
	-0.14	0.08	-0.18	-0.44	-0.18	-0.22	-0.68	-0.48	-0.08
	334	595	831	1069	1332	1581	1814	2076	2351
	2	13	-1	-13	1	0	-17	-5	20
	0.04	0.26	-0.02	-0.25	0.01	-0.01	-0.34	-0.10	0.41
	-0.33	-0.10	-0.39	-0.66	-0.35	-0.38	-0.72	-0.58	-0.02
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.20
	0.34	0.60	0.84	1.08	1.34	1.59	1.82	2.08	2.35
	0.33	0.60	0.83	1.07	1.33	1.58	1.81	2.07	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.31	-0.32
LOGGING ACCURACY (dB)	-0.08	-0.82

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.35
LOGGING ACCURACY (dB)	0.08	-0.68

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.41	-0.34
LOGGING ACCURACY (dB)	0.02	-0.72

Logging Linearity vs Frequency	Error(dB)	
TOTAL LOG LINEARITY (dB)	MAX	MIN
	0.41	-0.35

Logging Accuracy vs Frequency	Error(dB)	
TOTAL LOGGING ACCURACY (dB)	MAX	MIN
	0.08	-0.82

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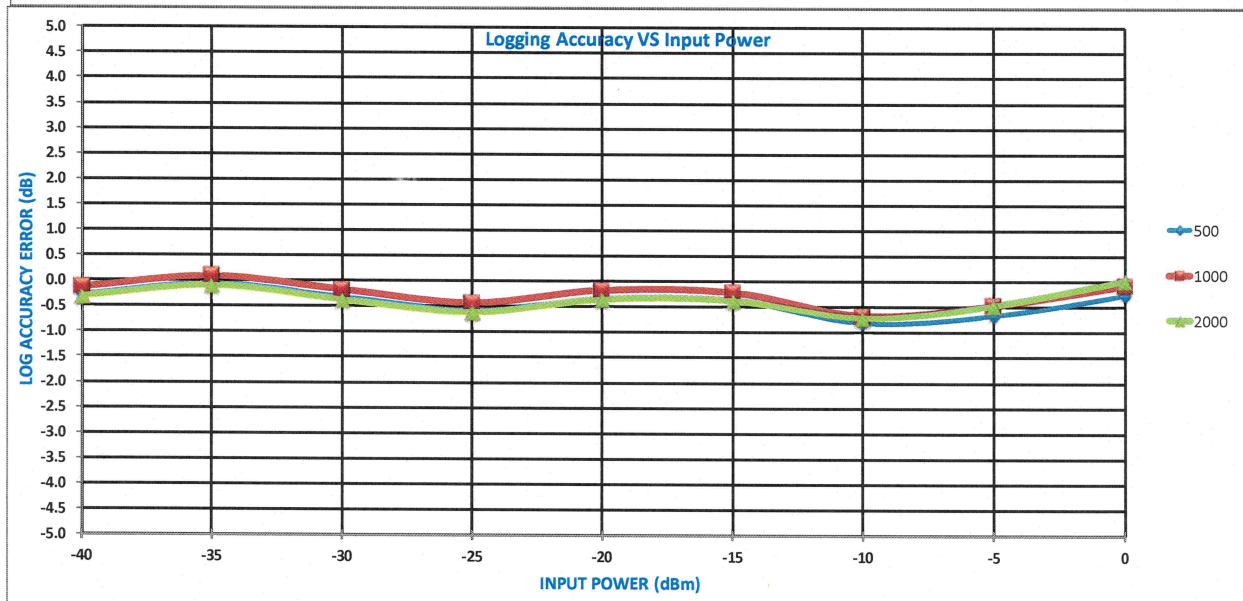
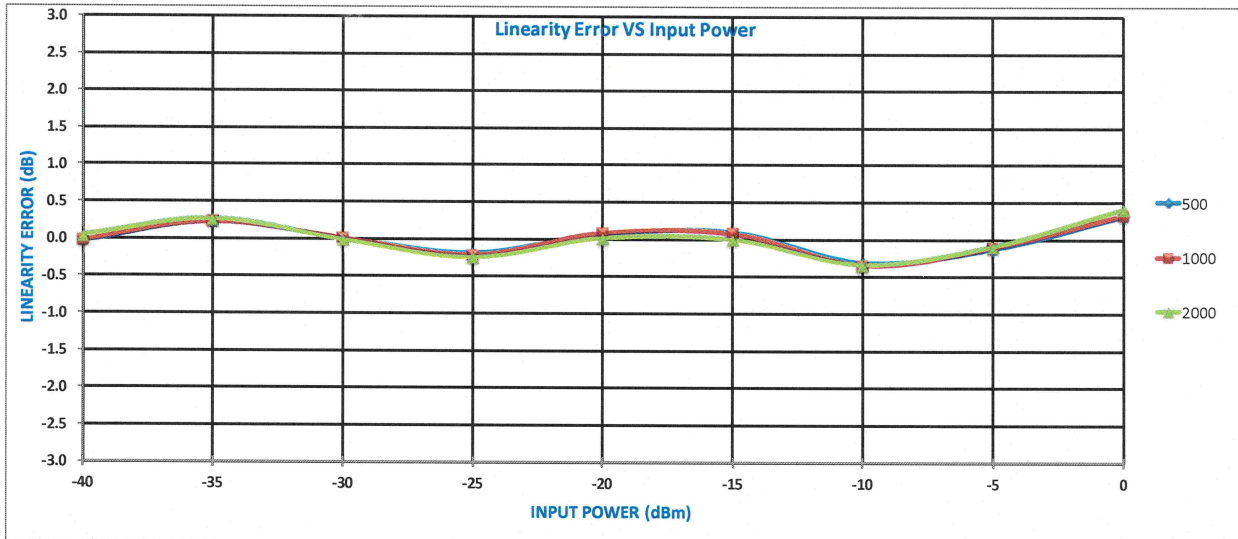


SUMMARY TEST DATA ON HADA-D2001

PL47264/2435

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47264
TEST TEMP: +85C



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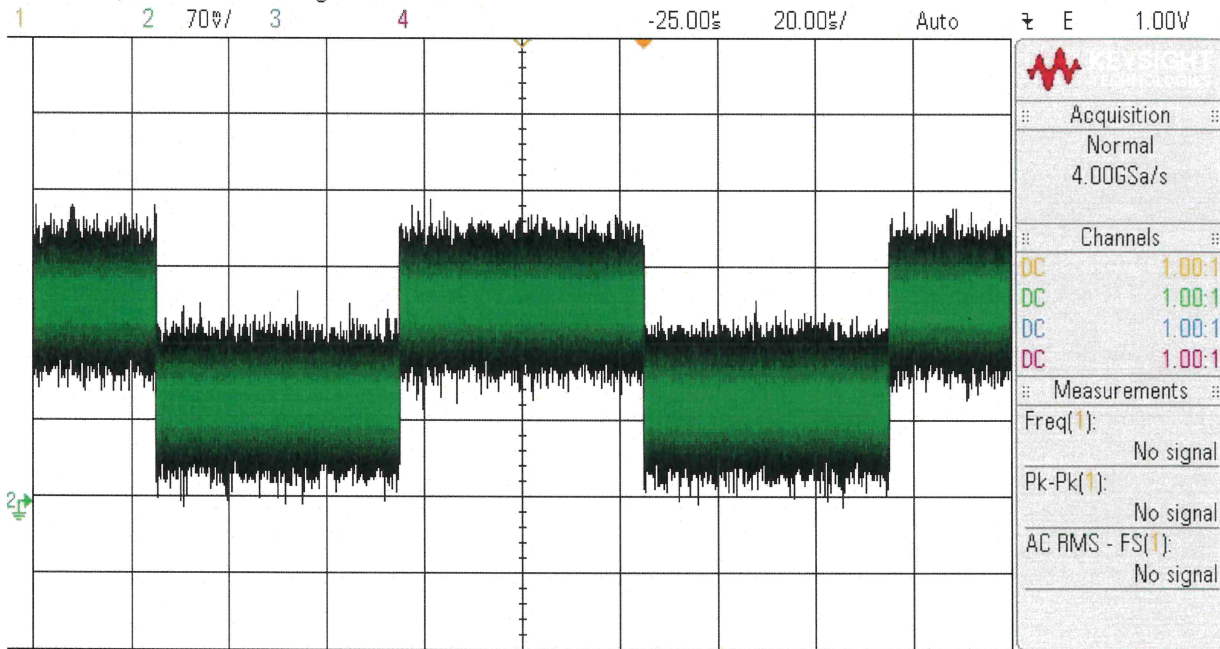


**SUMMARY TEST DATA
ON
HADA-D2001**

PL47264/2435

TSS -44.7 dBm

DSO-X 3024A, MY54490369: Wed Aug 14 10:28:14 2024



Acquire Menu

Acq Mode
Normal

Args
8

Segmented

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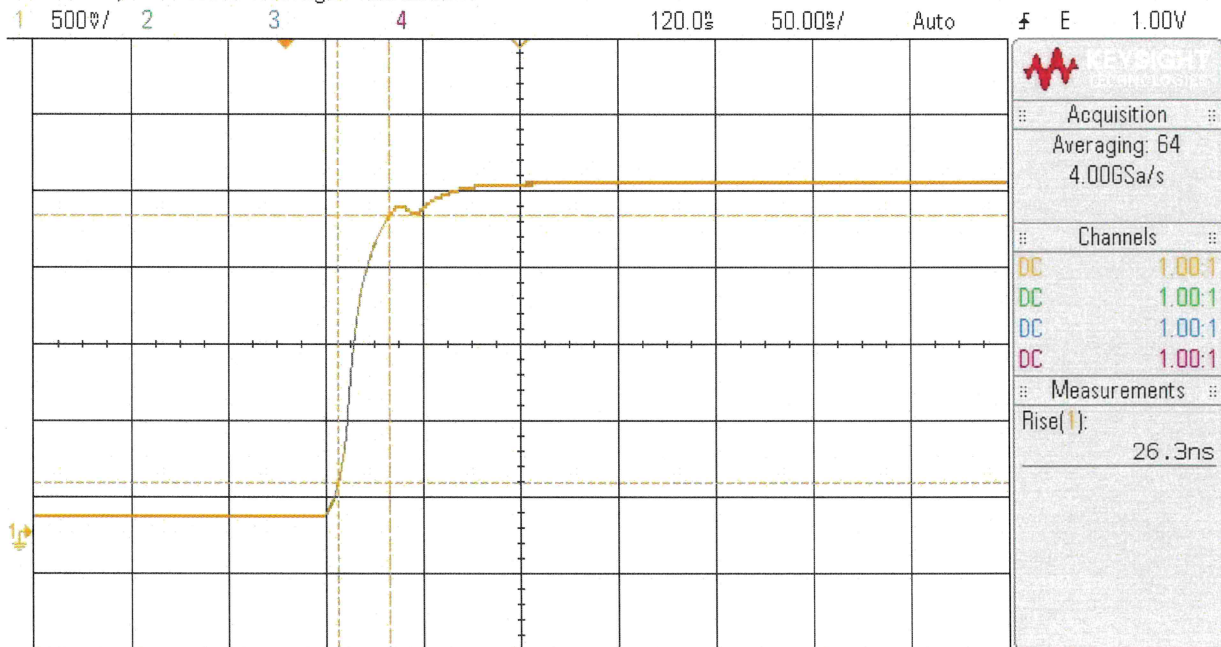


**SUMMARY TEST DATA
ON
HADA-D2001**

PL47264/2435

Rise Time

DSO-X 3024A, MY54490369 Wed Aug 21 15:27:20 2024



Acquire Menu

Acq Mode
Averaging

Avgs
64

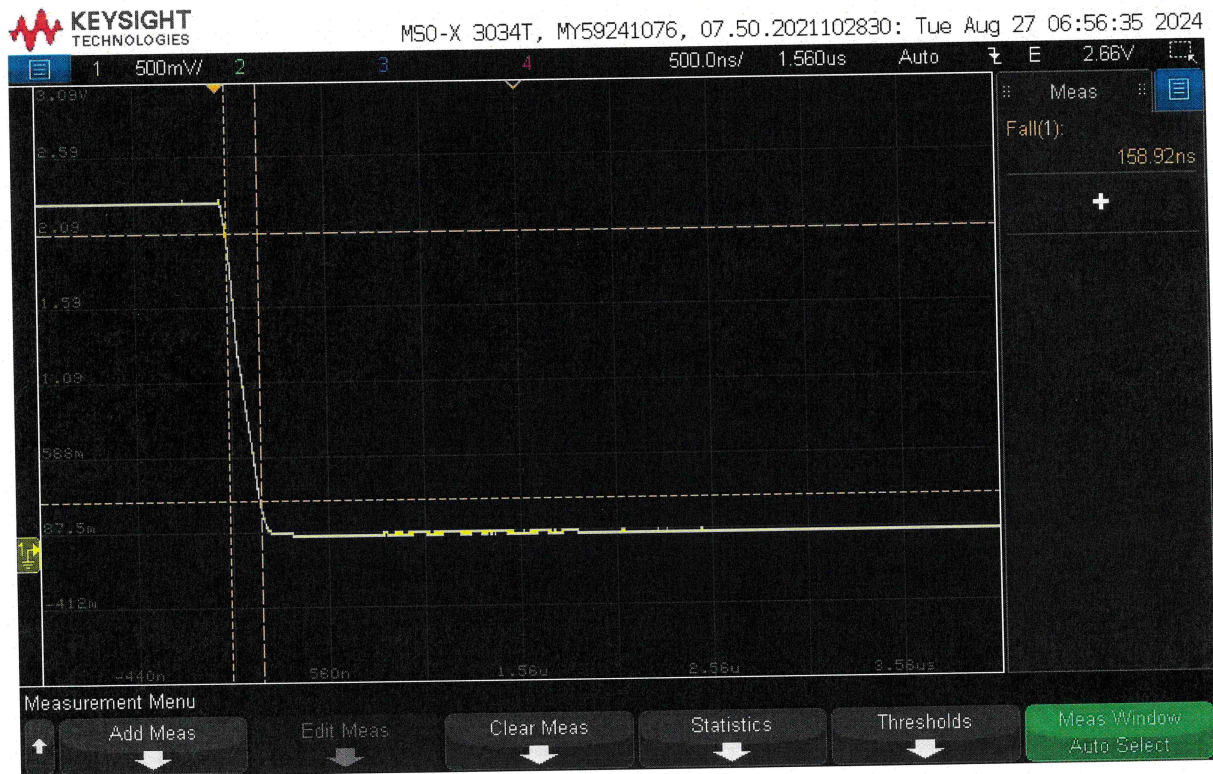
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**SUMMARY TEST DATA
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Fall Time



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VSWR

